

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-128. (Canceled)

129. (Previously Presented) A light emitting device comprising:

an anode;

a cathode;

a light emitting region comprising an organic compound interposed between the anode and the cathode, the light emitting region having a capability of transporting both holes and electrons; and

a dopant included only partly in the light emitting region.

130. (Previously Presented) A light emitting device comprising:

an anode;

a cathode;

a hole transporting region comprising a hole transporting material adjacent to the anode; an electron transporting region comprising the electron transporting material adjacent to the cathode;

a light emitting region comprising an organic compound interposed between the hole transporting region and the electron transporting region, said light emitting region having a capability of transporting both holes and electrons; and

a dopant included only partly in the light emitting region.

131. (Previously Presented) A light emitting device comprising:

an anode;

a cathode;

a light emitting region comprising an organic compound interposed between the anode and the cathode, the light emitting region having a capability of transporting both holes and electrons; and

a dopant included only partly in the light emitting region,
wherein the dopant is a triplet light emitting material.

132. (Previously Presented) A light emitting device comprising:
an anode;
a cathode;
a hole transporting region comprising a hole transporting material adjacent to the anode;
an electron transporting region comprising the electron transporting material adjacent to the cathode;

a light emitting region comprising an organic compound interposed between the hole transporting region and the electron transporting region, said light emitting region having a capability of transporting both holes and electrons; and

a dopant included only partly in the light emitting region,
wherein the dopant is a triplet light emitting material.

133. (Previously Presented) A light emitting device comprising:
an anode;
a cathode;
a light emitting region comprising an organic compound interposed between the anode and the cathode, the light emitting region having a capability of transporting both holes and electrons; and

a dopant included in an intermediate region of the light emitting region.

134. (Previously Presented) A light emitting device comprising:
an anode;

a cathode;
a hole transporting region comprising a hole transporting material adjacent to the anode;
an electron transporting region comprising the electron transporting material adjacent to the cathode;
a light emitting region comprising an organic compound interposed between the hole transporting region and the electron transporting region, said light emitting region having a capability of transporting both holes and electrons; and
a dopant included in an intermediate region of the light emitting region.

135. (Previously Presented) A light emitting device comprising:
an anode;
a cathode;
a light emitting region comprising an organic compound interposed between the anode and the cathode, the light emitting region having a capability of transporting both holes and electrons; and
a dopant included in an intermediate region of the light emitting region, wherein the dopant is a triplet light emitting material.

136. (Previously Presented) A light emitting device comprising:
an anode;
a cathode;
a hole transporting region comprising a hole transporting material adjacent to the anode;
an electron transporting region comprising the electron transporting material adjacent to the cathode;
a light emitting region comprising an organic compound interposed between the hole transporting region and the electron transporting region, said light emitting region having a capability of transporting both holes and electrons; and
a dopant included in an intermediate region of the light emitting region,

wherein the dopant is a triplet light emitting material.

137. (Previously Presented) A light emitting device according to claim 129, further comprising; a hole transporting region comprising a hole transporting material adjacent to the anode.

138. (Previously Presented) A light emitting device according to claim 129, further comprising; an electron transporting region comprising the electron transporting material adjacent to the cathode.

139. (Previously Presented) A light emitting device according to claim 129, wherein the light emitting region has a thickness of 30 nm or more.

140. (Previously Presented) A light emitting device according to claim 129, wherein the dopant is included in a thickness of 10 nm from a interface between the light emitting region and the anode or the cathode.

141. (Previously Presented) A light emitting device according to claim 129, wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio.

142. (Previously Presented) A light emitting device according to claim 130, wherein the light emitting region has a thickness of 30 nm or more.

143. (Previously Presented) A light emitting device according to claim 130, wherein the dopant is included in a thickness of 10 nm from a interface between the light emitting region and the hole transporting region or the electron transporting region.

144. (Previously Presented) A light emitting device according to claim 130, wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio.

145. (Previously Presented) A light emitting device according to claim 131, further comprising; a hole transporting region comprising a hole transporting material adjacent to the anode.

146. (Previously Presented) A light emitting device according to claim 131, further comprising; an electron transporting region comprising the electron transporting material adjacent to the cathode.

147. (Previously Presented) A light emitting device according to claim 131, wherein the light emitting region has a thickness of 30 nm or more.

148. (Previously Presented) A light emitting device according to claim 131, wherein the dopant is included in a thickness of 10 nm from a interface between the light emitting region and the anode or the cathode.

149. (Previously Presented) A light emitting device according to claim 131, wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio.

150. (Previously Presented) A light emitting device according to claim 132, wherein the light emitting region has a thickness of 30 nm or more.

151. (Previously Presented) A light emitting device according to claim 132, wherein the dopant is included in a thickness of 10 nm from a interface between the light emitting region and the hole transporting region or the electron transporting region.

152. (Previously Presented) A light emitting device according to claim 132, wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio.

153. (Previously Presented) A light emitting device according to claim 133, further comprising; a hole transporting region comprising a hole transporting material adjacent to the anode.

154. (Previously Presented) A light emitting device according to claim 133, further comprising; an electron transporting region comprising the electron transporting material adjacent to the cathode.

155. (Previously Presented) A light emitting device according to claim 133, wherein the light emitting region has a thickness of 30 nm or more.

156. (Previously Presented) A light emitting device according to claim 133, wherein the dopant is included in a thickness of 10 nm from a interface between the light emitting region and the anode or the cathode.

157. (Previously Presented) A light emitting device according to claim 133, wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a

digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio.

158. (Previously Presented) A light emitting device according to claim 134, wherein the light emitting region has a thickness of 30 nm or more.

159. (Previously Presented) A light emitting device according to claim 134, wherein the dopant is included in a thickness of 10 nm from a interface between the light emitting region and the anode or the cathode.

160. (Previously Presented) A light emitting device according to claim 134, wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio.

161. (Previously Presented) A light emitting device according to claim 135, further comprising; a hole transporting region comprising a hole transporting material adjacent to the anode.

162. (Previously Presented) A light emitting device according to claim 135, further comprising; an electron transporting region comprising the electron transporting material adjacent to the cathode.

163. (Previously Presented) A light emitting device according to claim 135, wherein the light emitting region has a thickness of 30 nm or more.

164. (Previously Presented) A light emitting device according to claim 135, wherein the dopant is included in a thickness of 10 nm from a interface between the light emitting region and the anode or the cathode.

165. (Previously Presented) A light emitting device according to claim 135, wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio.

166. (Previously Presented) A light emitting device according to claim 136, wherein the light emitting region has a thickness of 30 nm or more.

167. (Previously Presented) A light emitting device according to claim 136, wherein the dopant is included in a thickness of 10 nm from a interface between the light emitting region and the hole transporting region or the electron transporting region.

168. (Previously Presented) A light emitting device according to claim 136, wherein the light emitting device is an electric apparatus selected from a display device, a video camera, a digital camera, an image reproducing device, a mobile portable computer, a personal computer, a cellular phone, and an audio.

169. (Previously Presented) A light emitting device according to claim 129, wherein the dopant comprises an organic compound.

170. (Previously Presented) A light emitting device according to claim 130, wherein the dopant comprises an organic compound.

171. (Previously Presented) A light emitting device according to claim 131, wherein the dopant comprises an organic compound.

172. (Previously Presented) A light emitting device according to claim 132, wherein the dopant comprises an organic compound.

173. (Previously Presented) A light emitting device according to claim 133, wherein the dopant comprises an organic compound.

174. (Previously Presented) A light emitting device according to claim 134, wherein the dopant comprises an organic compound.

175. (Previously Presented) A light emitting device according to claim 135, wherein the dopant comprises an organic compound.

176. (Previously Presented) A light emitting device according to claim 136, wherein the dopant comprises an organic compound.

177. (New) A light emitting device according to claim 169, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porpherin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

178. (New) A light emitting device according to claim 170, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porpherin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

179. (New) A light emitting device according to claim 171, wherein the organic

compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porpherin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

180. (New) A light emitting device according to claim 172, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porpherin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

181. (New) A light emitting device according to claim 173, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porpherin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

182. (New) A light emitting device according to claim 174, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porpherin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

183. (New) A light emitting device according to claim 175, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porpherin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

184. (New) A light emitting device according to claim 176, wherein the organic compound is at least one selected from the group of tris (2-phenylpyridine) iridium, 2, 3, 7, 8, 12, 13, 17, 18-octaethyl-21H, 23H-porpherin-platinum, perylene, rubrene, and 4-(dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran.

185. (New) A light emitting device according to claim 137, wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl, 4, 4', 4''-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4''-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

186. (New) A light emitting device according to claim 130, wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl, 4, 4', 4''-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4''-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

187. (New) A light emitting device according to claim 145, wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl, 4, 4', 4''-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4''-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

188. (New) A light emitting device according to claim 132, wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl, 4, 4', 4''-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4''-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

189. (New) A light emitting device according to claim 153, wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl, 4, 4', 4''-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4''-tris [N-3-thylphenyl)-N-phenyl-amino]-triphenylamine.

190. (New) A light emitting device according to claim 134, wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl, 4, 4', 4''-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4''-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

191. (New) A light emitting device according to claim 161, wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl, 4, 4', 4''-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4''-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

192. (New) A light emitting device according to claim 136, wherein the hole transporting material is at least one selected from the group of 4, 4'-bis [N-(3-methylphenyl)-N-phenyl-amino]-biphenyl, 4, 4'-bis [N-(1-naphthyl)-N-phenyl-amino]-biphenyl, 4, 4', 4''-tris (N, N-diphenyl-amino)-triphenylamine, and 4, 4', 4''-tris [N-(3-methylphenyl)-N-phenyl-amino]-triphenylamine.

193. (New) A light emitting device according to claim 138, wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium, tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl)-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

194. (New) A light emitting device according to claim 130, wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium,

tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl)-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

195. (New) A light emitting device according to claim 146, wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium, tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl)-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

196. (New) A light emitting device according to claim 132, wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium, tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl)-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

197. (New) A light emitting device according to claim 154, wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium,

tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl)-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

198. (New) A light emitting device according to claim 134, wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium, tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl)-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

199. (New) A light emitting device according to claim 162, wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium, tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl)-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.

200. (New) A light emitting device according to claim 136, wherein the electron transporting material is at least one selected from the group of tris (8-quinolinolato) aluminium, tris (4-methyl-8-quinolinolato) aluminium, bis (10-hydroxybenzo[h]-quinolinato) beryllium, bis (2-methyl-8-quinolinolato)-(4-phenylphenolate)-aluminium, bis [2-(2-hydroxyphenyl)-

Applicant : Satoshi Seo et al.
Serial No. : 10/623,609
Filed : July 22, 2003
Page : 16 of 18

Attorney's Docket No.: 12732-
087002 / US5381/5474/5502D1

benzoxazolato] zinc, bis [2-(2-hydroxyphenyl)-benzothiazolato] zinc, 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1, 3, 4-oxadiazole, 1, 3-bis[5-(p-tert-butylphenyl)-1, 3, 4-oxadiazole-2-il] benzene, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-phenyl-1, 2, 4-triazole, 5-(4-biphenyl)-3-(4-tert-butylphenyl)-4-(4-ethylphenyl)-1, 2, 4-triazole, bathophenanthroline, and bathocuproine.